



Water-Data Report 2008

01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ

RAHWAY RIVER BASIN

LOCATION.--Lat 40°41'15", long 74°18'42" referenced to North American Datum of 1983, Springfield Township, Union County, NJ, Hydrologic Unit 02030104, on left bank 50 ft downstream from bridge on eastbound U.S. Highway 22, 100 ft downstream from Pope Brook, and 1.5 mi south of Springfield.

DRAINAGE AREA.--25.5 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1938 to current year.

REVISED RECORDS.--WSP 1622: 1945. WDR NJ-1973: 1938(M), 1968(M), 1971(M).

GAGE.--Water-stage recorder and crest-stage gage. Former concrete control is no longer effective. Datum of gage is 66.17 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Water for municipal supply diverted from river by City of Orange at Orange Reservoir upstream on the West Branch Rahway River. The flow past this station is affected by diversions by pumpage from wells by Orange, South Orange, New Jersey-American Water Company, and Springfield station of Elizabethtown Water Company (no longer active). Several measurements of water temperature were made during the year. Since 1980, the site may be affected during high flows by backwater from the Lenape Park flood control dam, about 1 mi downstream. Satellite gage-height telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb 13	1600	1,230	6.01
Sep 6	2145	*1,900	*7.29

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[*e*, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	8.9	11	12	59	262	42	39	17	19	11	11	7.4
2	8.9	11	13	36	175	31	42	22	14	11	81	7.4
3	9.4	e11	68	23	38	25	19	18	13	10	16	8.0
4	e9.3	e11	22	19	29	32	73	18	70	11	14	7.6
5	e8.9	e9.7	16	18	28	107	33	15	19	20	12	8.3
6	e8.7	29	14	18	29	41	23	14	15	16	15	420
7	e8.4	10	13	18	29	83	21	14	16	12	11	360
8	e7.7	10	14	19	22	423	20	14	18	13	17	21
9	e19	10	20	19	20	143	19	150	15	24	13	61
10	35	15	41	16	20	55	18	91	47	17	10	21
11	122	10	15	140	17	43	18	27	89	11	20	12
12	56	11	14	44	16	37	62	58	17	10	12	23
13	9.7	20	106	28	657	31	22	29	14	11	9.3	18
14	7.6	10	69	70	166	29	18	20	71	91	10	10
15	7.4	37	33	41	59	34	17	18	121	14	43	9.7
16	7.7	14	59	25	46	29	16	83	20	12	21	9.6
17	7.6	14	40	23	40	25	16	85	24	11	9.7	9.5
18	8.1	14	21	111	135	22	15	41	16	11	9.2	10
19	35	24	19	42	60	137	15	31	17	10	9.2	10
20	36	20	21	27	36	194	15	50	14	9.6	9.0	10
21	11	14	19	21	29	50	15	38	13	19	8.7	10
22	11	12	18	19	33	36	15	24	35	10	8.7	11
23	11	e11	176	18	37	30	14	20	23	108	8.8	12
24	15	e11	132	17	30	27	14	18	14	221	8.8	12
25	23	e11	33	16	31	25	14	16	12	24	9.0	14
26	17	130	28	15	45	24	16	15	11	14	8.8	175
27	303	41	67	15	63	23	16	20	12	39	8.1	26
28	35	18	29	14	35	23	117	16	13	15	8.2	40
29	13	14	177	14	25	21	81	14	35	12	8.1	23
30	12	12	44	24	---	19	23	13	18	12	44	13
31	11	---	93	15	---	22	---	37	---	12	8.5	---
Total	883.3	575.7	1,446	984	2,212	1,863	846	1,046	835	821.6	482.1	1,379.5
Mean	28.5	19.2	46.6	31.7	76.3	60.1	28.2	33.7	27.8	26.5	15.6	46.0
Max	303	130	177	140	657	423	117	150	121	221	81	420
Min	7.4	9.7	12	14	16	19	14	13	11	9.6	8.1	7.4
Cfsm	1.12	0.75	1.83	1.24	2.99	2.36	1.11	1.32	1.09	1.04	0.61	1.80
In.	1.29	0.84	2.11	1.44	3.23	2.72	1.23	1.53	1.22	1.20	0.70	2.01

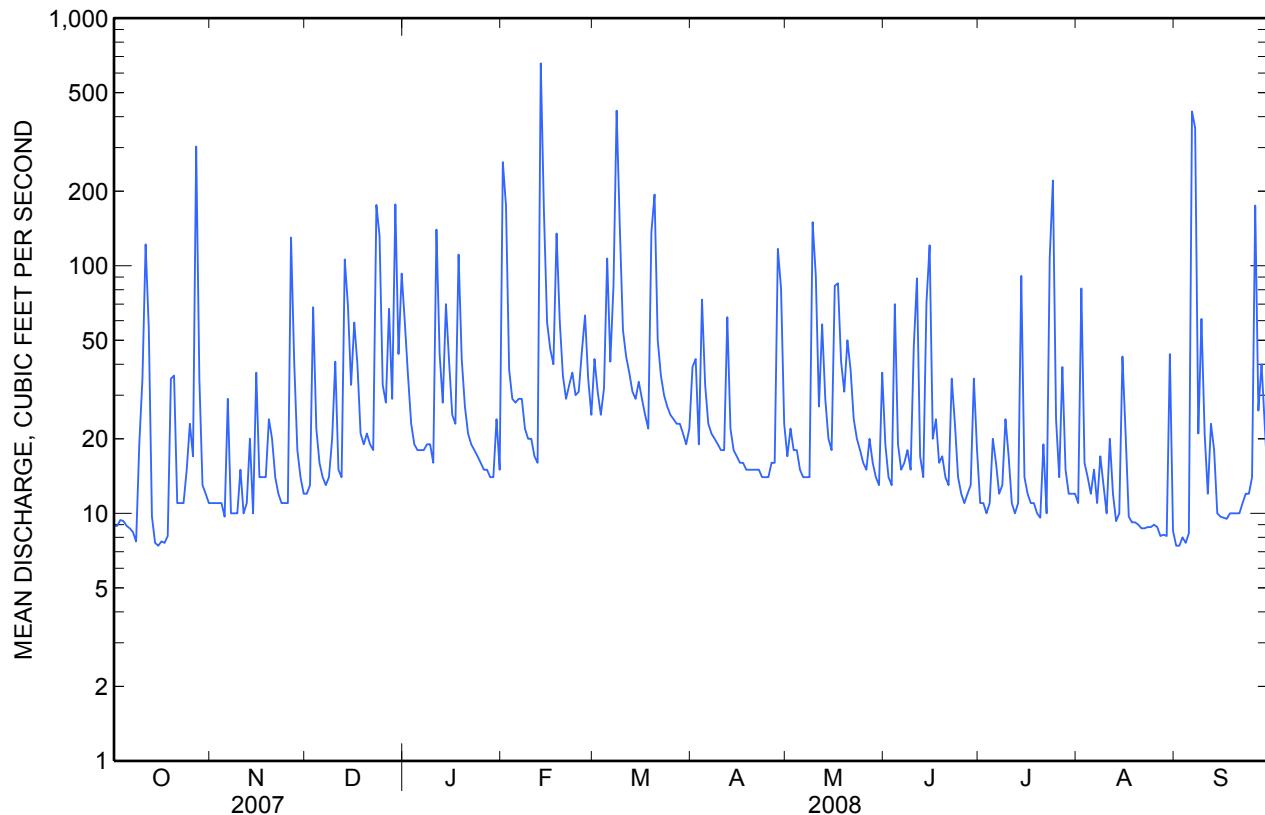
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	21.3	28.5	32.3	32.5	34.9	48.1	44.6	34.3	26.4	26.0	23.0	24.2
Max	111	107	129	116	79.5	120	186	112	123	138	112	151
(WY)	(2006)	(1973)	(1984)	(1979)	(1998)	(1994)	(2007)	(1989)	(2003)	(1975)	(1942)	(1999)
Min	2.17	2.73	4.02	4.26	6.86	8.08	7.37	6.31	4.14	2.23	2.10	2.97
(WY)	(1964)	(1950)	(1940)	(1966)	(2002)	(1981)	(1963)	(1965)	(1965)	(1966)	(1964)	(1964)

01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued**SUMMARY STATISTICS**

	Calendar Year 2007		Water Year 2008		Water Years 1939 - 2008	
Annual total	17,438.6		13,374.2			
Annual mean	47.8		36.5		31.3	
Highest annual mean					55.9	1973
Lowest annual mean					10.0	1965
Highest daily mean	1,660	Apr 16	657	Feb 13	2,270	Sep 16, 1999
Lowest daily mean	7.4	Oct 15	7.4	Many days	0.40	Sep 11, 1966
Annual seven-day minimum	8.5	Sep 24	8.5	Aug 23	0.71	Oct 8, 1970
Maximum peak flow			1,900	Sep 6	a7,990	Sep 16, 1999
Maximum peak stage			7.29	Sep 6	10.67	Sep 16, 1999
Instantaneous low flow			7.0	Oct 15	0.10	Sep 11, 1966
Annual runoff (cfsm)	1.87		1.43		1.23	
Annual runoff (inches)	25.44		19.51		16.69	
10 percent exceeds	68		75		61	
50 percent exceeds	18		18		12	
90 percent exceeds	10		9.7		3.7	

^a From rating curve extend above 1,600 ft³/s on basis of slope-area measurement of peak flow.



01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Cooperative Network Site Descriptor: Urban Land Use Indicator, NJ Department of Environmental Protection Watershed Management Area 7.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, suspended residue, ammonia-plus-organic nitrogen in bed sediment, and phosphorus in bed sediment were performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 1 of 3

[Remark codes: <, less than; E, estimated; M, presence verified but not quantified.]

Date	Time	Turbdty white light, det ang 90+-30 corrctd	UV absorb- ance, 254 nm, wat flt units	UV absorb- ance, 280 nm, wat flt units	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfiltrd field, std units	Specif- ic conduc- tance, wat unf 25 degC (00095)	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO ₃ (00900)	
Nov 08...	1030	9.8	1.9	.104	.079	765	7.1	59	7.5	543	12.0	7.5	170
Feb 27...	1000	62	5.5	.113	.084	746	11.7	91	7.6	1,140	2.0	4.6	120
May 06...	1015	14	2.2	.077	.057	759	5.7	56	7.6	734	24.0	15.0	210
Aug 21...	0945	8.7	3.0	.060	.044	765	5.3	57	7.6	731	18.5	18.3	240

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 2 of 3

[Remark codes: <, less than; E, estimated; M, presence verified but not quantified.]

Date	Calcium water, filtrd, mg/L (00915)	Magnes- ium, water, filtrd, mg/L (00925)	Potas- sium, water, filtrd, mg/L (00935)	Sodium, water, filtrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO ₃ (90410)	Chlor- ide, water, lab, mg/L (00940)	Fluor- ide, water, filtrd, mg/L (00950)	Silica, water, filtrd, mg/L as SiO ₂ (00955)	Sulfate, water, filtrd, mg/L (00945)	Residue water, filtrd, sum of consti- tuents mg/L (70301)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total non- filter- able, mg/L (00530)	Ammonia + org-N, water, filtrd, mg/L as N (00623)
Nov 08...	50.3	10.1	2.31	34.6	111	81.3	.13	15.3	25.7	292	319	9	.18
Feb 27...	36.0	8.05	2.16	161	55	299	E.06	10.0	20.9	E576	608	4	.28
May 06...	63.3	13.3	2.30	59.1	119	134	E.07	13.5	29.3	E391	470	1	.40
Aug 21...	72.7	14.2	2.31	49.2	137	123	.13	16.0	32.0	397	485	4	.31

01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 3 of 3

[Remark codes: <, less than; E, estimated; M, presence verified but not quantified.]

Date	Ammonia water, filtrd, mg/L as N (00608)	Nitrate + nitrite water, mg/L as N (00631)	Particulate nitrogen, susp, water, mg/L (49570)	Total nitrogen, water, filtrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Ortho-phosphate, water, filtrd, mg/L as P (00671)	Phosphorus, water, filtrd, mg/L as P (00666)	Phosphorus, water, unfltrd, mg/L as P (00665)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, filtrd, mg/L (00681)	Boron, water, filtrd, µg/L (01020)
Nov 08...	<.010	1.25	.05	1.4	1.5	.050	.058	.074	.4	<.04	.4	3.1	62
Feb 27...	.044	1.00	.08	1.3	1.4	.015	.021	.045	.8	M	.7	3.4	40
May 06...	.131	.91	.09	1.3	1.4	.039	.051	.092	.7	<.04	.7	2.5	69
Aug 21...	.058	1.21	.05	1.5	1.6	.054	.061	.100	.6	<.04	.6	2.3	70

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 1 of 4

[Remark codes: <, less than; E, estimated.]

Date	Time	pH bed sedimnt std units (70310)	Ammonia + org-N, bed sed total, mg/kg as N (00626)	Phos-phorus, bed sedimnt total, mg/kg as P (00668)	Total carbon, bed sedimnt total, g/kg (00693)	Inor-ganic carbon, bed sedimnt total, g/kg (00686)	Arsenic bed sedimnt recover -able, ug/g (64847)	Cadmium bed sedimnt recover -able, ug/g (01028)	Chrom-ium, bed sedimnt recover -able, ug/g (01029)	Cobalt bed sedimnt recover -able, ug/g (01038)	Copper, bed sedimnt recover -able, ug/g (01043)	Iron, bed sedimnt total digest, ug/g (01170)	Lead, bed sedimnt recover -able, ug/g (01052)
Aug 21...	0945	7.38	140	1,700	5.7	1.0	1.8	.250	25	5.4	64	17,000	160

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 2 of 4

[Remark codes: <, less than; E, estimated.]

Date	Mangan-ese, bed sedimnt recover -able, ug/g (01053)	Mercury bed sedimnt recover -able, ug/g (71921)	Nickel, bed sedimnt recover -able, ug/g (01068)	Selen-iun, bed sedimnt recover -able, ug/g (64848)	Zinc, bed sedimnt recover -able, ug/g (01093)	1,2-Di-methyl-naphth-alene, bed sed bed sed	1,6-Di-methyl-naphth-alene, bed sed bed sed	1Methyl-9H-fluor-ene, bed sed bed sed	1-Methyl-phenan-threne, bed sed bed sed	1-Methyl-pyrene, bed sed bed sed	236Tri-methyl-naphth-alene, bed sed bed sed	2,6-Di-methyl-naphth-alene, bed sed bed sed	2-Ethyl naphth-alene bed sed
Aug 21...	190	.019	16.2	<.1	97	E6	E9	E14	E50	E50	E9	E17	E9

01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 3 of 4

[Remark codes: <, less than; E, estimated.]

Date	2-Methyl-anthra-cene, bed sed <2 mm, bs ug/kg (49435)	4H-Cyclo-penta-fluor-ene, bed sed <2 mm, wsv nat ug/kg (49411)	9H-Fluor-naphth-ene, bed sed <2 mm, wsv nat ug/kg (49399)	Ace-naphth-ylene, bed sed <2 mm, wsv nat ug/kg (49429)	Ace-naphth-ylene, bed sed <2 mm, wsv nat ug/kg (49428)	Anthra-cene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49434)	Benzene, [a]-anthra-cene, bed sed <2 mm, wsv nat ug/kg (49436)	Benzene, [a]-pyrene, bed sed <2 mm, wsv nat ug/kg (49389)	Benzene, [b]-fluor-anthene, bed sed <2 mm, wsv nat ug/kg (49458)	Benzene, [b]-peryl-anthene, bed sed <2 mm, wsv nat ug/kg (49408)	Benzene, [k]-fluor-anthene, bed sed <2 mm, wsv nat ug/kg (49397)	Benzene, [k]-sene, bed sed <2 mm, wsv nat ug/kg (49450)	Chrysene, bed sed <2 mm, wsv nat ug/kg (49461)	Dibenzanthracene, bed sed <2 mm, wsv nat ug/kg (49461)
Aug 21...	E24	110	110	130	E27	160	410	490	960	E210	380	640	<58	

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 4 of 4

[Remark codes: <, less than; E, estimated.]

Date	Fluor-anthene, bed sed <2 mm, wsv nat ug/kg (49466)	Indeno-[1,2,-3-cd]-pyrene, bed sed <2 mm, bed sed field, <2 mm ug/kg (49390)	Iso-phorone, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49400)	Naphth-alene, bed sed <2 mm, bed sed wsv nat ug/kg (49402)	p-PCBs, bed sed <2 mm, bed wsv nat ug/kg (39519)	Cresol, bed sed <2 mm, wsv nat sediment ug/kg (49451)	Phenanthrene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49409)	Phenanthrene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49393)	Phenanthrene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49387)	Pyrene, bed sed <2 mm, wsv nat field, <2 mm ug/kg (49393)	Bed sediment, dry svd sve dia percent <62.5um (80164)	
Aug 21...	1,200	E210	<50	84	14.3	E10	750	E32	980	1		